



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,719	03/10/2004	Toshimitsu Hirai	9319S-000729	4111

27572 7590 11/28/2008  
HARNESS, DICKEY & PIERCE, P.L.C.  
P.O. BOX 828  
BLOOMFIELD HILLS, MI 48303

EXAMINER
----------

TADAYYON ESLAMI, TABASSOM

ART UNIT	PAPER NUMBER
----------	--------------

1792

MAIL DATE	DELIVERY MODE
-----------	---------------

11/28/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/797,719	<b>Applicant(s)</b> HIRAI ET AL.	
	<b>Examiner</b> TABASSOM TADAYYON ESLAMI	<b>Art Unit</b> 1792	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 October 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9, 12 and 13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 12 and 13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |



Art Unit: 1792

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/22/08 has been entered.

#### DETAILED ACTION

##### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-9, and 12-13 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no support in the specification (specially in paragraphs 09-30 as indicated by the applicant in action mailed on 05/02/08) indicated the width of the droplets is smaller than that of the film pattern in the side of the first pattern forming area and the center of the second pattern forming area.

*Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

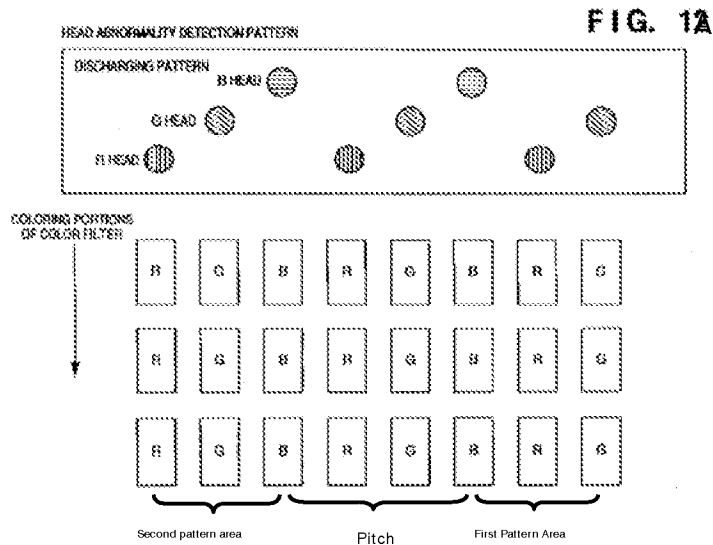
2. Claims 1-2, 4-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Makoto Akahira et al, (U. S. Patent: 6145981, here after 981).

Claim 1 is rejected. 981 teaches a method of making linear film pattern by arranging droplets of a liquid discharged from a plurality of discharged portions on a substrate [fig. 12A] comprising; defining a plurality of pattern forming areas arranged with a pitch which is larger than that of the discharge portions [fig. 12A], in which the film the film pattern are to be formed on the substrate the areas including;

a first pattern forming area in which a film pattern is to be formed from a side thereof(G); and a second pattern forming area in which a film pattern is to be formed from the center thereof(G)[ fig. 12A]. The droplets width is inherently smaller than the film pattern in the side of the first pattern forming area and the center of the second pattern forming area, because the width (diameter) of the droplet is smaller while it is not dropped on the surface (the volume of the droplet is consistent and when the droplet hits the center the diameter of the droplets increases as the height of the droplets on the surface decreases); and wherein the discharge portions are provided corresponding to

Art Unit: 1792

the first and second pattern forming areas, and the droplets are arranged while moving the discharge portion in the direction in which the pattern forming area are arranged.



Although 981 doesn't clearly teaches the droplets touch each others in each side of the first pattern forming area and the center of the second pattern forming area, but it is inherent that the droplets must touch( or overlap) to create a uniform film, it is also shown in fig. 15-fig. 18, that the droplets are touching each other to create the film.

Claim 2 is rejected. 981 teaches the limitation of claim 1 as discussed above and it is inherent that the droplets in the first and second pattern simultaneously arranged in forming areas (G).

Claim 4 is rejected. 981 teaches the limitation of claim 1 and 981 further teaches in first pattern forming area, the side is first formed(G) and then center formed(R ), and in the second pattern forming area, the center portion is first formed(G) and then the side is formed(R ) [fig. 12A].

Claim 5 is rejected. 981 teaches the limitation of claim 1 and 981 further teaches, a plurality of discharge portions for arranging the droplets are provided corresponding to the first and second pattern forming areas, and the droplets are arranged while moving the discharge portions in the direction in which the pattern forming areas are arranged [printing the color lines along the proposed line].

Claim 6 is rejected. 981 teaches the limitation of claim 1 and 981 further teaches; a step of forming one side of a first film pattern to be formed in the first pattern forming area (B), a step of forming a central portion of a second film pattern to be formed I the second pattern forming area at the same time as forming the other of the first film pattern(G ), and a step of forming one of one side and the other side of the second film pattern at the same time as forming central portion of the first film pattern (R ) [fig. 12A].

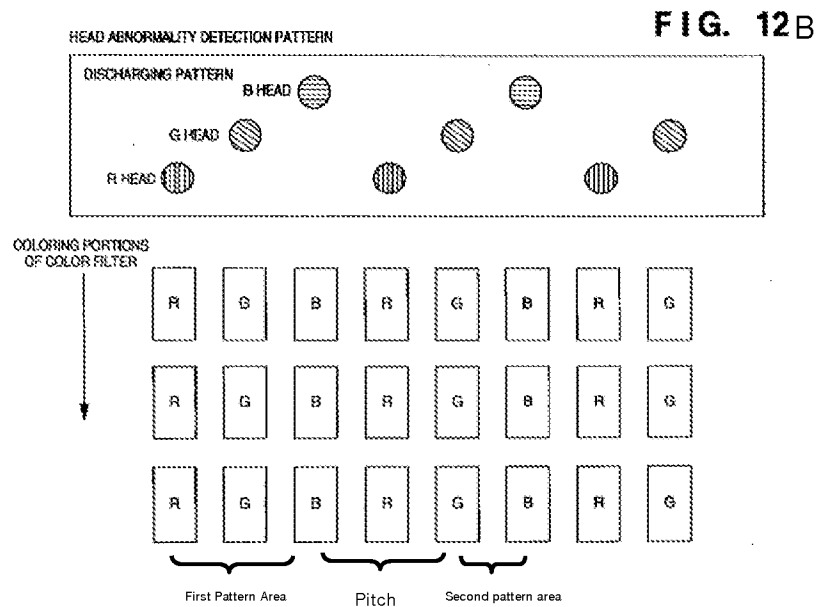
Claim 7 is rejected. 981 teaches,

A pattern forming method of forming linear film patterns by arranging droplets of a liquid material discharging from a plurality of discharge portions on a substrate [ abstract, also fig. 12B (below)], the method comprising, when a plurality of the film patterns are arranged with a pitch is larger which is larger than of the discharge portions and formed on the substrate [ fig. 12B]: a first step of a first pattern forming area in

Art Unit: 1792

which a film pattern is to be formed from a side thereof; and a second pattern forming area in which a film pattern is to be formed from the center thereof[ fig. 12B]. Forming a first area (mark on fig. 12B) of a first film pattern of the plurality of film patterns (R ); a second step of forming a first area of a second film pattern (G)at the same time as forming a second area of the first film pattern; and a third step of forming a second area of the second film pattern (B) at the same time as forming a third area of the first film pattern [ fig. 12]. The droplets width is inherently smaller than the film pattern in the side of the first pattern forming area and the center of the second pattern forming area, because the width (diameter) of the droplet is smaller while it is not dropped on the surface (the volume of the droplet is consistent and when the droplet hits the center the diameter of the droplets increases as the height of the droplets on the surface decreases). 981 also teaches the polarity of nozzles (304 fig. 52C) ejects the ink to print specific pattern area (color) on the surface. 981 teaches the discharge portions are provided corresponding to the first and second pattern forming areas, and the droplets are arranged while moving the discharge portion in the direction in which the pattern forming area are arranged[printing the color lines along the proposed line].





Although 981 doesn't clearly teaches the droplets touch each others in each side of the first step, the second step and third step, but it is inherent that the droplets must touch (or overlap) to create a uniform film, it is also shown in fig. 15-fig. 18, that the droplets are touching each other to create the film.

*Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 1792

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Makoto Akahira et al, (U. S. Patent: 6145981, here after 981).

981 teaches the limitation of claim 1 as discussed above. Although 918 teaches arranging the droplets in first and second areas simultaneously, but in general splitting of one step into two, where the processes are substantially identical or equivalent in terms of function, manner and result was held to be not patentable distinguished the processes. *Ex parte Rubin*, 128 USPQ 440(Bd. Pat. App. 1959). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention was made to have a method the pattern forming method that 981 teaches where the droplets is only arranged in one of the first and second pattern forming areas, because the result of the process is the same as printing the line simultaneously.

Claim 8 is rejected. 981 teaches the limitation of claim 7 as discussed above. Although 918 teaches arranging the droplets in first and second areas simultaneously, but in general splitting of one step into two, where the processes are substantially identical or equivalent in terms of function, manner and result was held to be not patentable distinguished the processes. *Ex parte Rubin*, 128 USPQ 440(Bd. Pat. App. 1959). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention was made to have a method the pattern forming method that 981 teaches where only the red line in the first area is first printed (separately) and then (second step), green lines are printed simultaneously. In the next step (third step), the blue lines are printed simultaneously in both first and second areas. In the four step a single red

Art Unit: 1792

line is printed as the third area of the second pattern, first in first pattern area and then in the second pattern are (not simultaneously), because the result of the process is the same as printing the green line simultaneously in both areas.

3. Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Makoto Akahira et al, (U. S. Patent: 6145981, here after 981), further in view of Nakamura et al (U. S. Patent Application: 2003/0184613, here after 613).

Claims 12-13 are rejected for the same reason claim 7 is rejected. Although fig. 12A and 12B referred to making a pattern for color filter and not forming a wiring pattern as claims 12-13 require. 613 teaches a method of making linear pattern structure by discharging a liquid material from a plurality of nozzles on a substrate to form a color filter [abstract lines 1-3, fig. 8A]. 613 also teaches the nozzles and the method is capable to form a wiring pattern [0200]. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention was made to have a method the pattern forming method that 981 teaches to form a wiring pattern as 613 teaches, because 613 teaches the ink jet nozzles can print the wiring structure for an electronic device.

4. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Makoto Akahira et al, (U. S. Patent: 6145981, here after 981), further in view of Nakamura et al (U. S. Patent Application: 2003/0184613, here after 613 and Alfred I-Tsung Pan (U. S. Patent: 6501663, here after Pan).

Claim 9 is rejected. 981 teaches the limitation of claim 7 as discussed above. Although fig. 12A and 12B referred to making a pattern for color filter and not forming a wiring pattern as claims 12-13 require. 613 teaches a method of making linear pattern

Art Unit: 1792

structure by discharging a liquid material from a plurality of nozzles on a substrate to form a color filter [abstract lines 1-3, fig. 8A]. 613 also teaches the nozzles and the method is capable to form a wiring pattern [0200]. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention was made to have a method the pattern forming method that 981 teaches to form a wiring pattern as 613 teaches, because 613 teaches the ink jet nozzles can print the wiring structure for an electronic device. None of the above reference teach the wiring pattern is done by an ink (liquid material) comprising conductive particles. Pan teaches a pattern forming method of forming conductive film patterns [abstract lines 1] by arranging droplets of a liquid material on a substrate [abstract lines 3-6], Pan further teaches the liquid material comprises conductive particles [column 10 lines 11-15, lines 49-52]. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention was made to have a method the pattern forming method that 981 and 613 teaches where the wiring pattern is done by printing an ink comprising conductive particles as Pan teaches, because Pan teaches it is suitable to make a wiring structure with printing conductive ink.

### *Response to Arguments*

5. Applicant's arguments filed 10/22/08 have been fully considered but they are not persuasive. The applicant argues fig. 2A-2D teaches the features of claims 1-9, and 12-13, the examiner disagrees. In fact the claims are broader than what is taught by the figures. The applicant further argues Akahira doesn't teach the droplets in side of the first pattern forming area, the center of the second pattern forming area are in contact.

Art Unit: 1792

The examiner disagrees, the droplets must contact and overlap each others in order to form a uniform film usable in color filter, further more figs. 15-18 clearly shows overlapping the droplets when they ejected from nozzle on the pattern area, same argument exists for first, second and third pattern area

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tabassom T Tadayyon-Eslami whose telephone number is 571-270-1885. The examiner can normally be reached on 7:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on 571-272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tabassom T. Tadayyon-Eslami/  
Examiner, Art Unit 1792

Application/Control Number: 10/797,719

Page 12

Art Unit: 1792

/Michael Cleveland/  
Supervisory Patent Examiner, Art Unit 1792